Rhode Island Growth Model

Spring 2011

Purpose of Workshop

- To introduce the RI Growth Model
- To provide an opportunity to look at state and district data

You may be wondering…

- Why use a growth model?
- How is it different?
- How is it calculated?
- Why is it useful?
- How will it be used?

Why use a growth model?

- Progress matters too.
- It gives us a new way of looking at achievement:
  Proficiency + Growth = Achievement
- It asks a new question: Are students and schools making progress?

CO high jump example

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How is it different?

- NECAP shows student performance relative to state standards

  Ex. Is Alex proficient in 7th grade reading?

- The growth model shows student performance relative to academic peers

  Ex. How much progress did Alex make in reading relative to his academic peers?

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Percentile ≠ Percentage

- Suppose 100 students take a test with 10 questions.
- If a student got 8 correct, then the percentage that she got correct is 80.
- Suppose the other 99 students all got 70% (or fewer) of the items correct. Then the student who got 80% outperformed the other 99 students. She is in the 99th percentile.

How is it calculated?

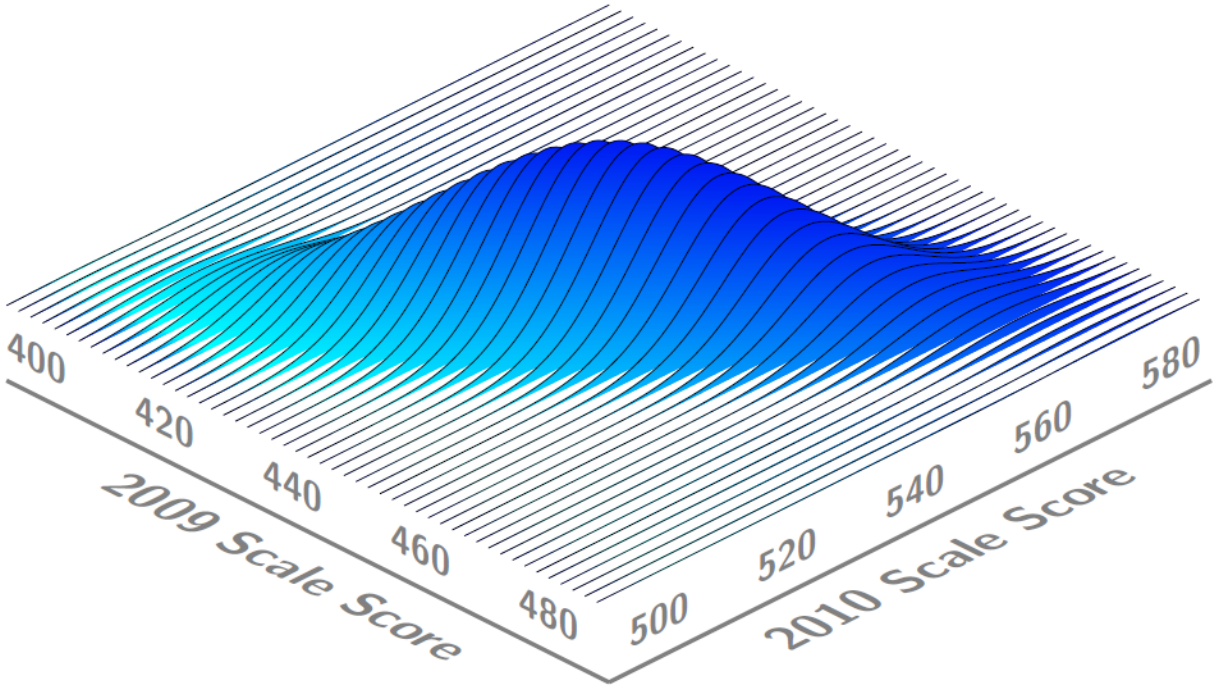
- Each student's growth is compared to the growth of his or her academic peers (students with a similar test score history)

- The growth is expressed as a percentile, from 1-99, with higher being better

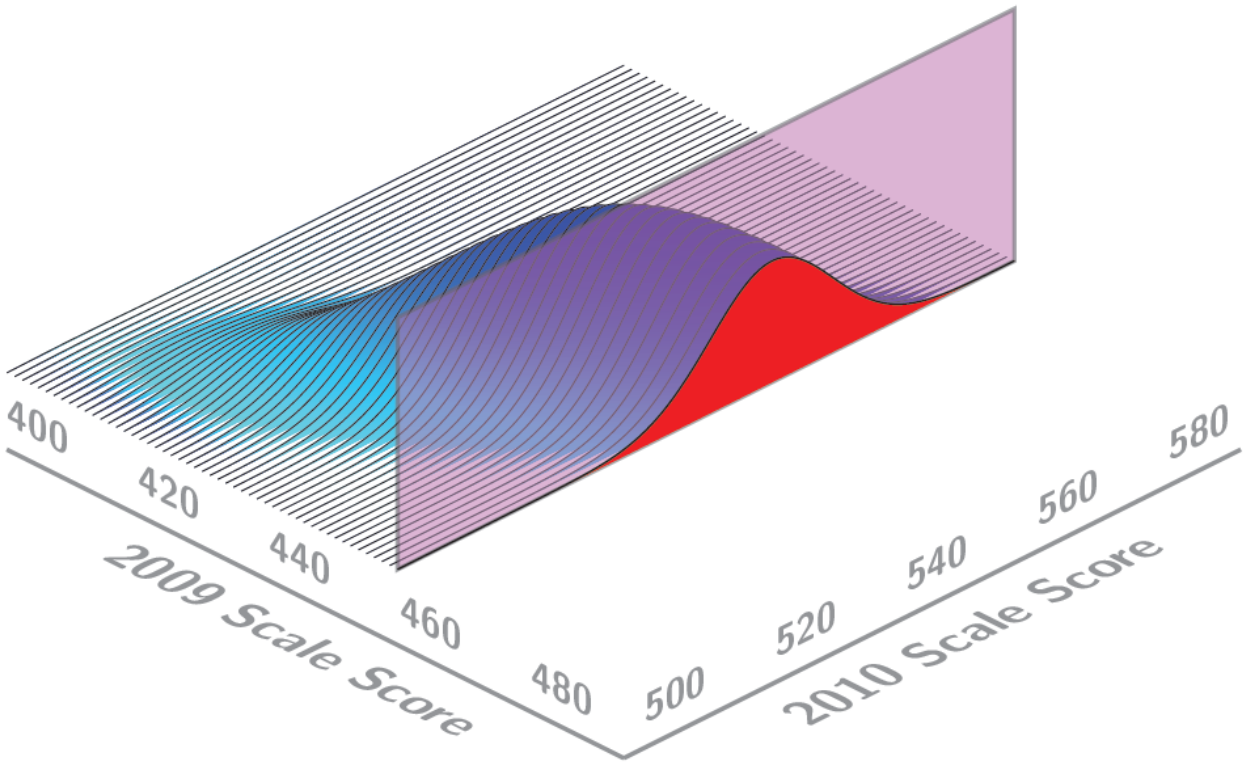
Q How much did Alex improve his reading from 6th to 7th grade, relative to his academic peers?

A An SGP of 74 means that Alex made greater improvements in his reading than 74% of his peers.

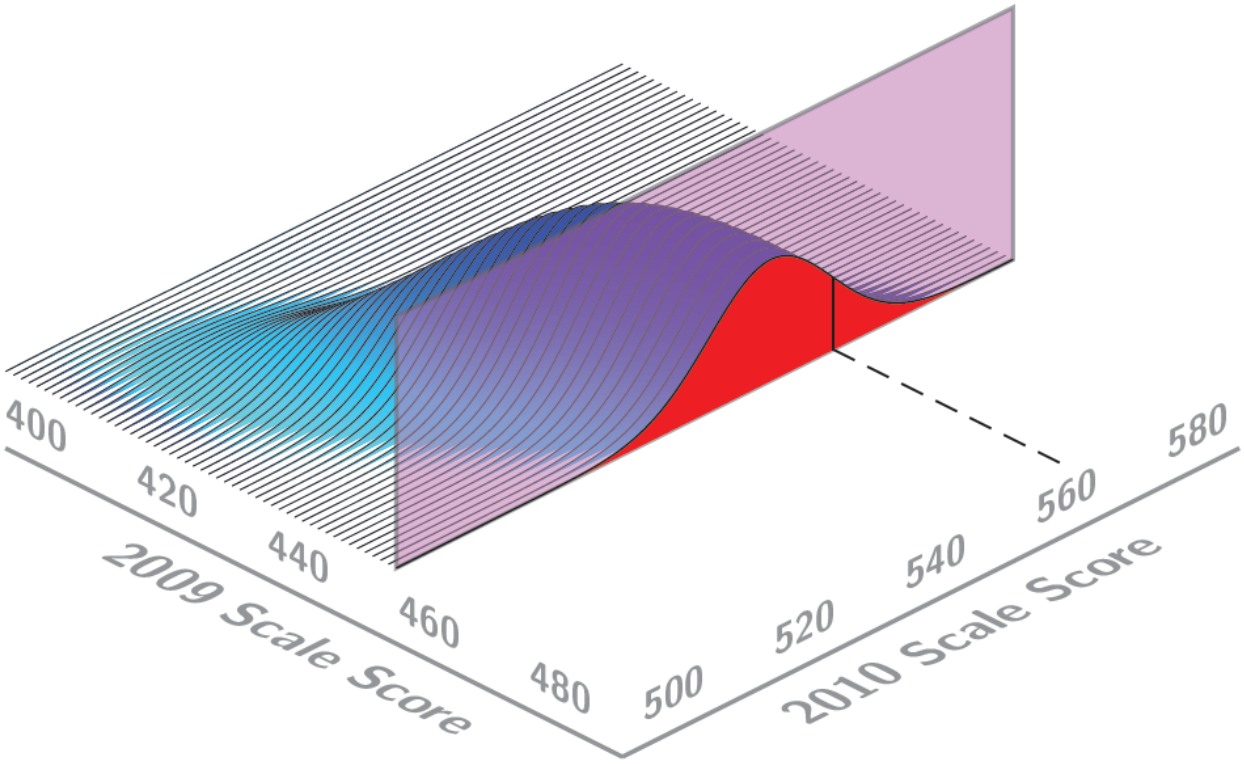
All students who took the 4th Gr. NECAP in 2009 and the 5th Gr. NECAP in 2010



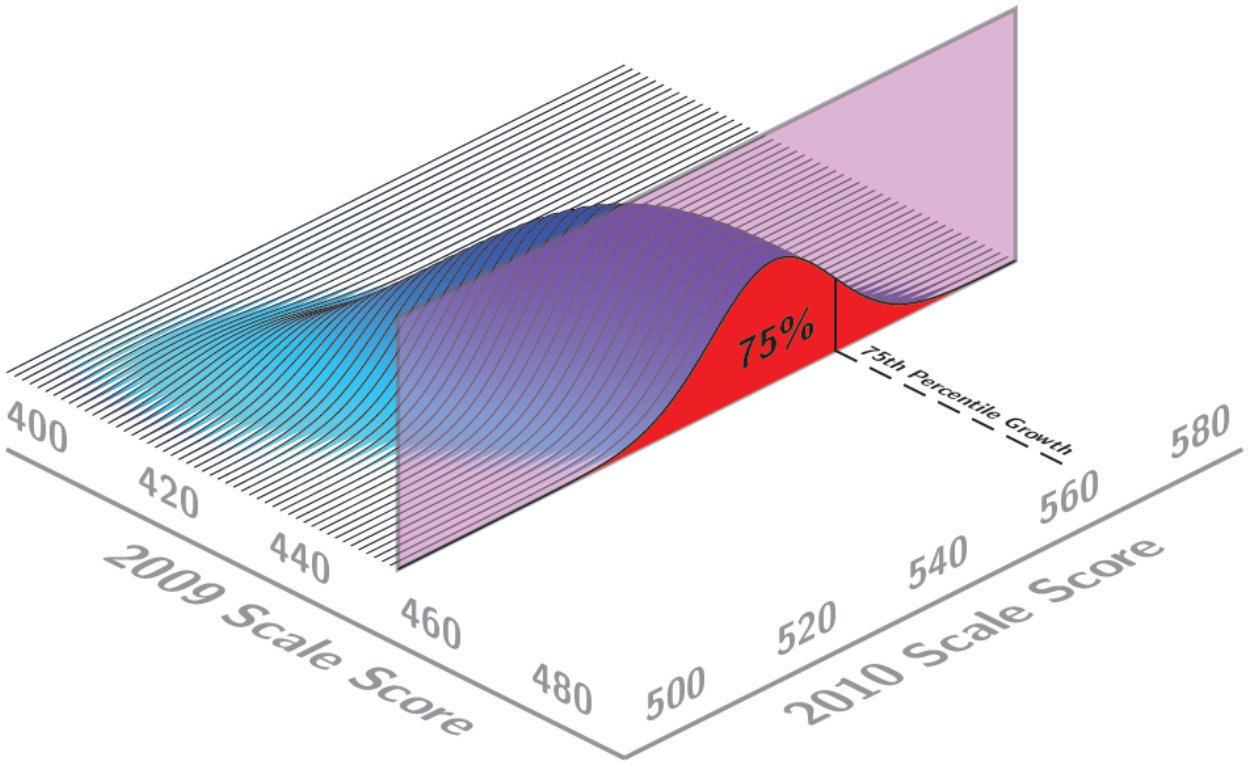
The 2010 data of all students who scored 455 in 2009



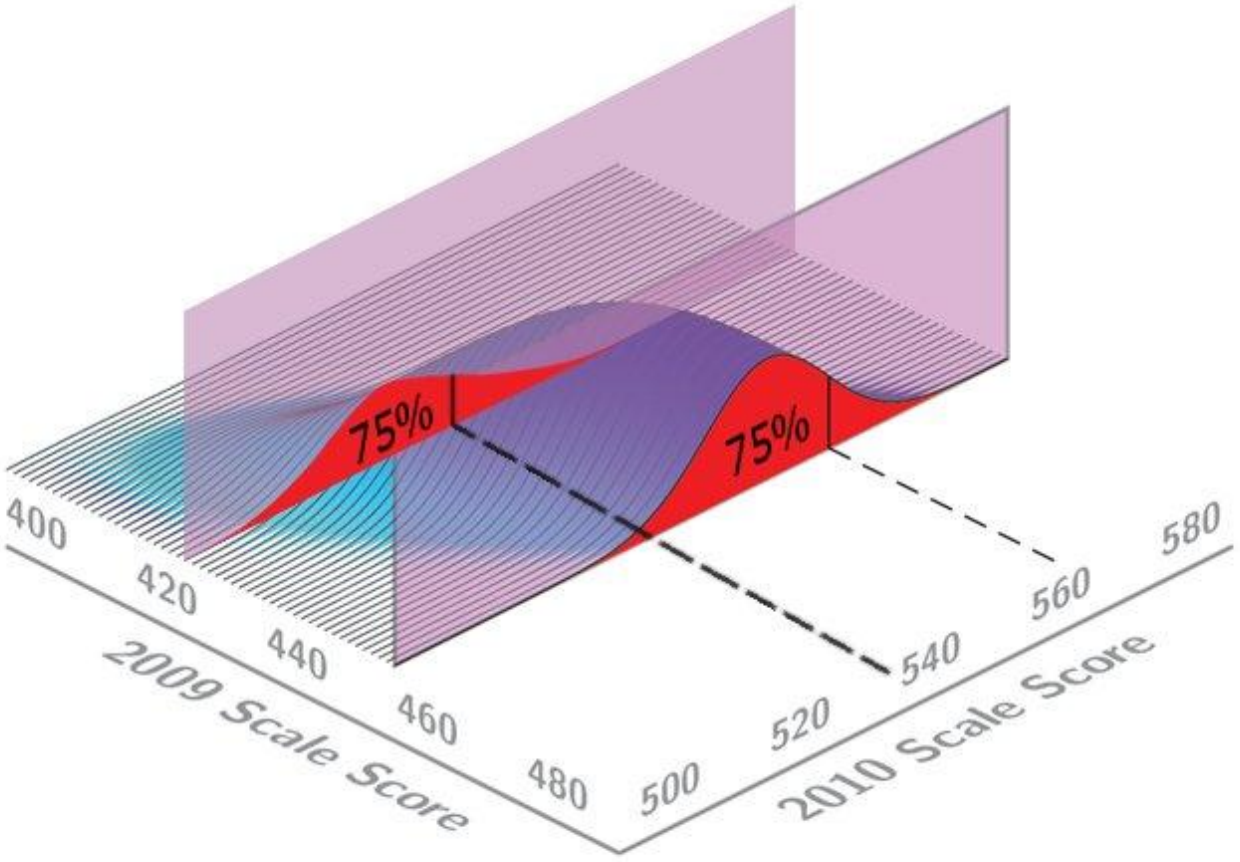
One student who scored 455 in 2009 and 565 in 2010



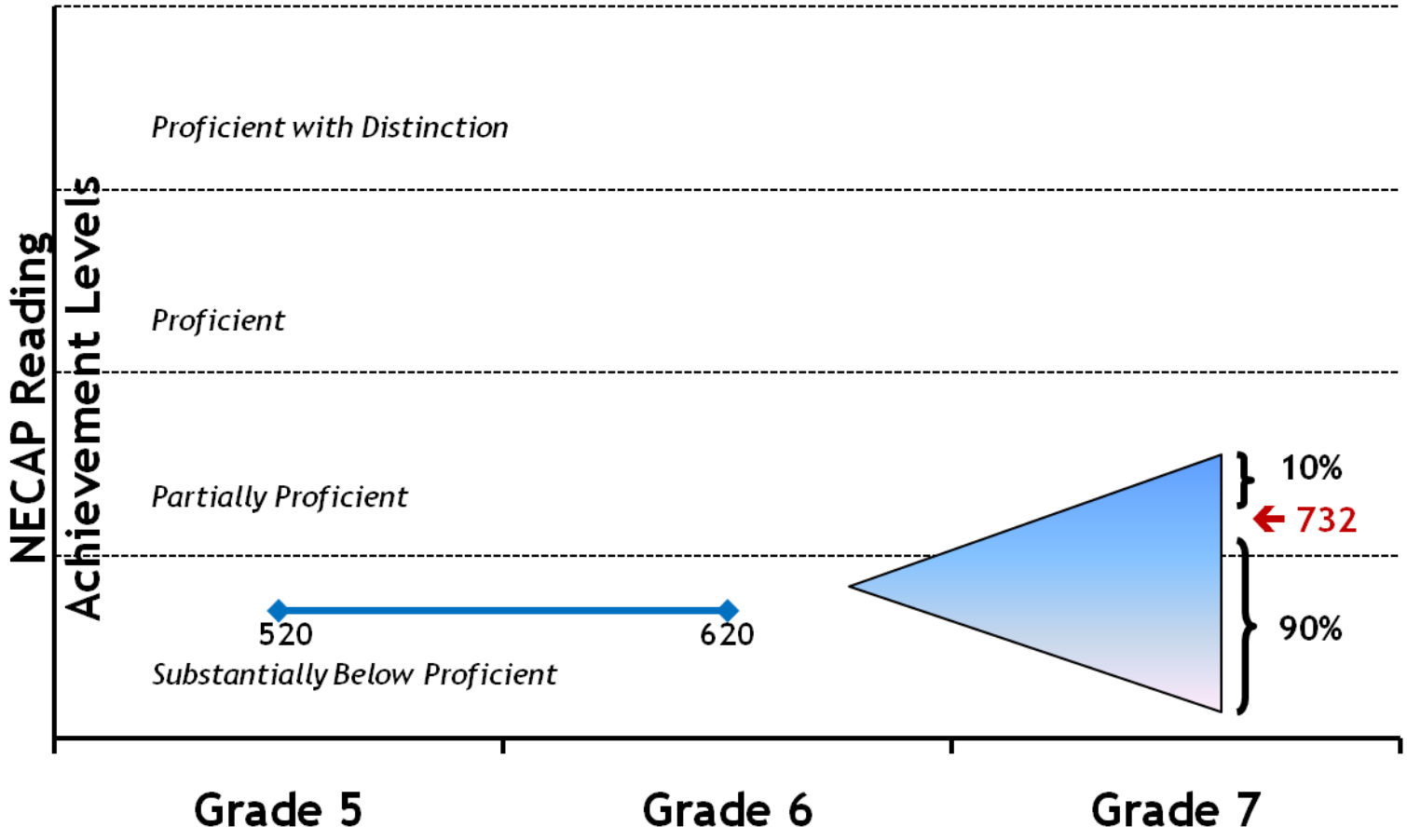
This student outperformed 75% of his academic peers



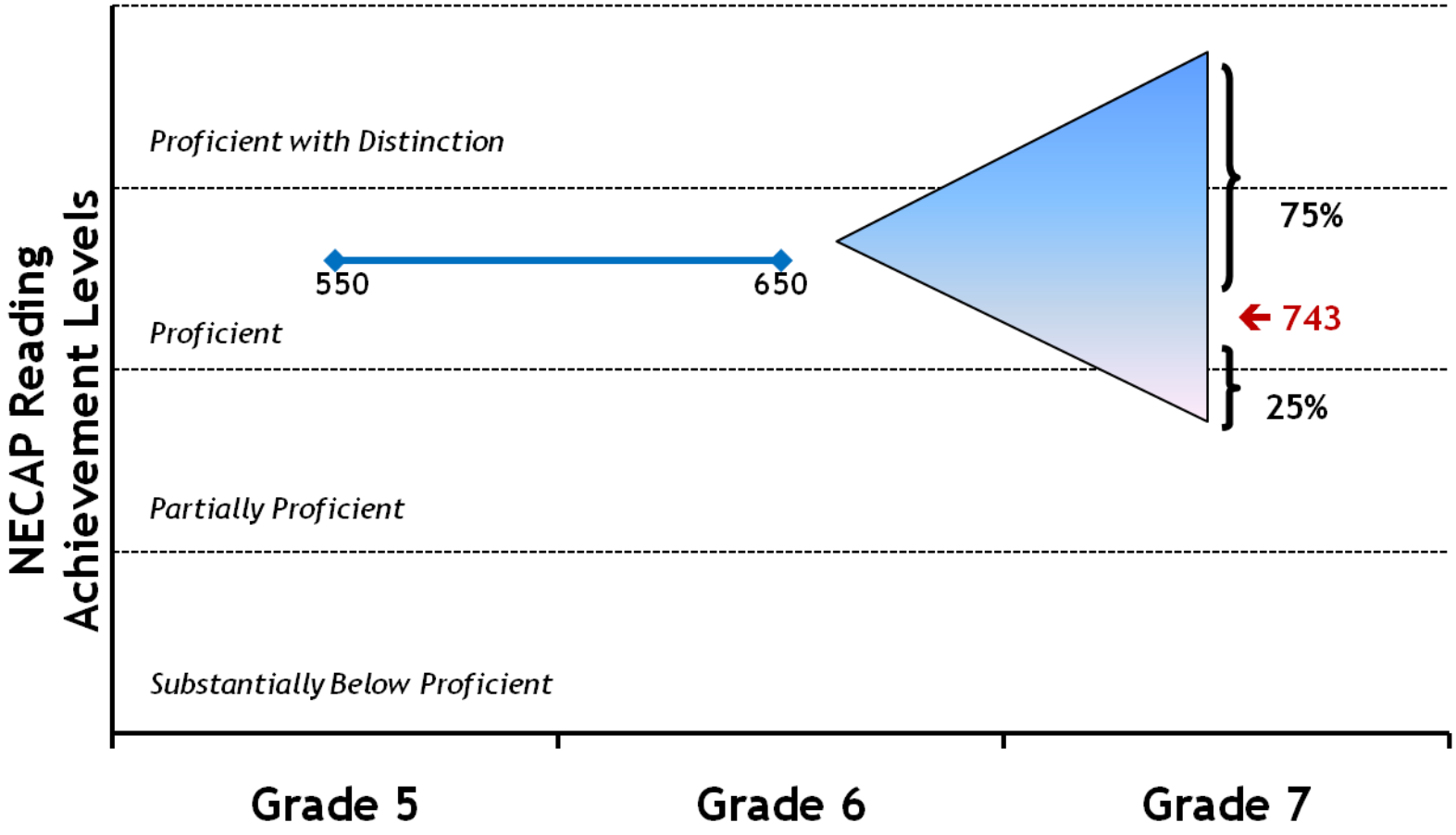
A student with different scores could also score at the 75th percentile



Student A's growth from Grade 6 to Grade 7 is in the 90th percentile of his academic peers (SGP=90)



Student B's growth from Grade 6 to Grade 7 is in the 25th percentile of his academic peers (SGP=25)



How is it calculated?

To aggregate the data, we find the median student growth percentile:

-a measure of central tendency

-the number at which half of the students in the group have a higher growth percentile and half lower

How is it calculated?

Why use the median instead of the mean?

- The median is more appropriate when using percentiles.
- The mean is highly influenced by very high and very low scores, whereas the median is a better indicator of the true center of the data.

How will individual student growth scores be used to calculate Growth Ratings for schools?

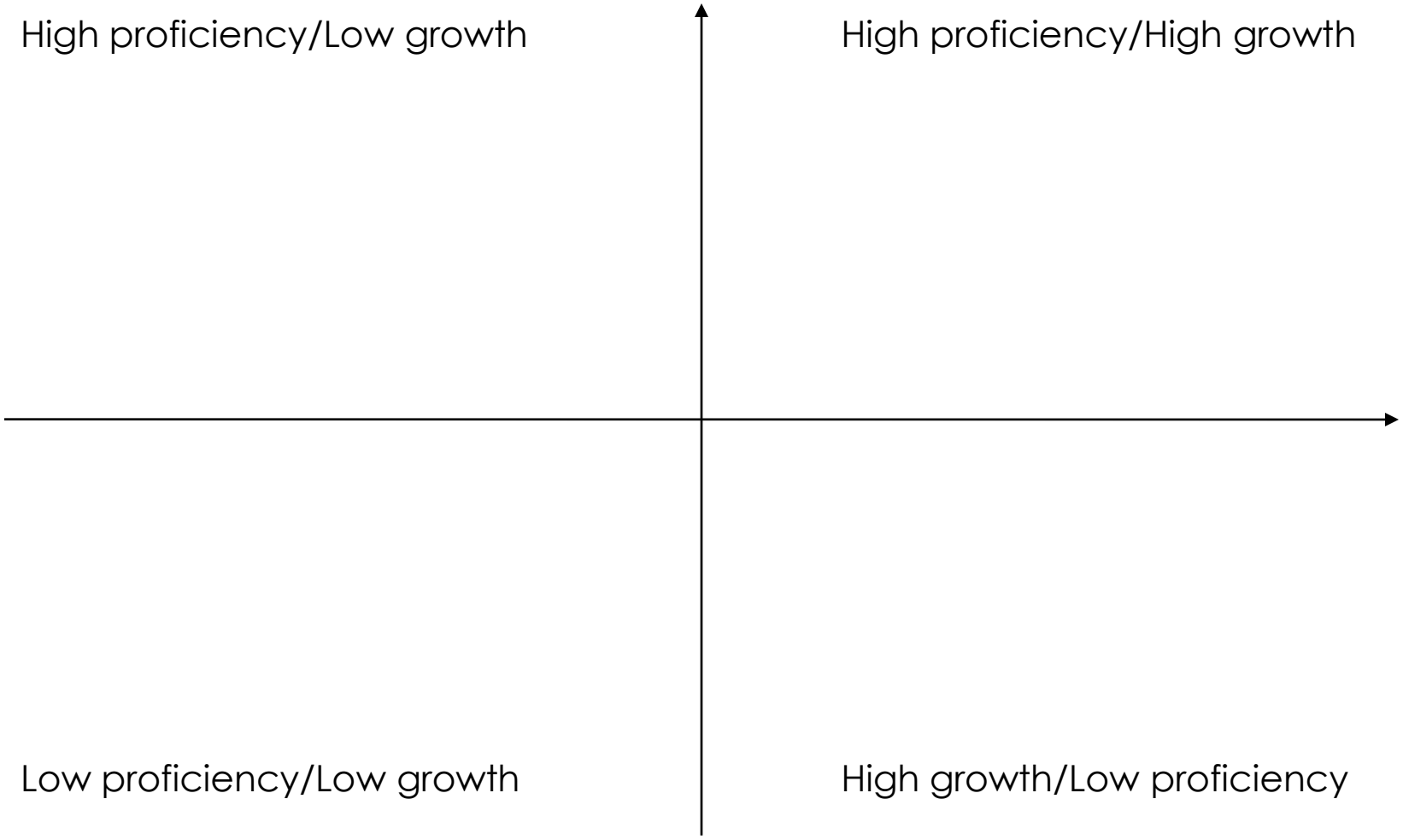
Student's Name	SGP
Shoba	5
Andre	14
Damian	25
Charlie	40
Lisa	51
Brian	56
Ana	60
Kevin	62
Mary	70
Tamika	82
David	85
Mary Ann	90
Sue	96

Median SGP for the school

Imagine that the students listed on the left are all the students in a school. Note that they are sorted from lowest to highest SGP.

The point at which 50% of students have a higher SGP and 50% have a lower SGP is the median.

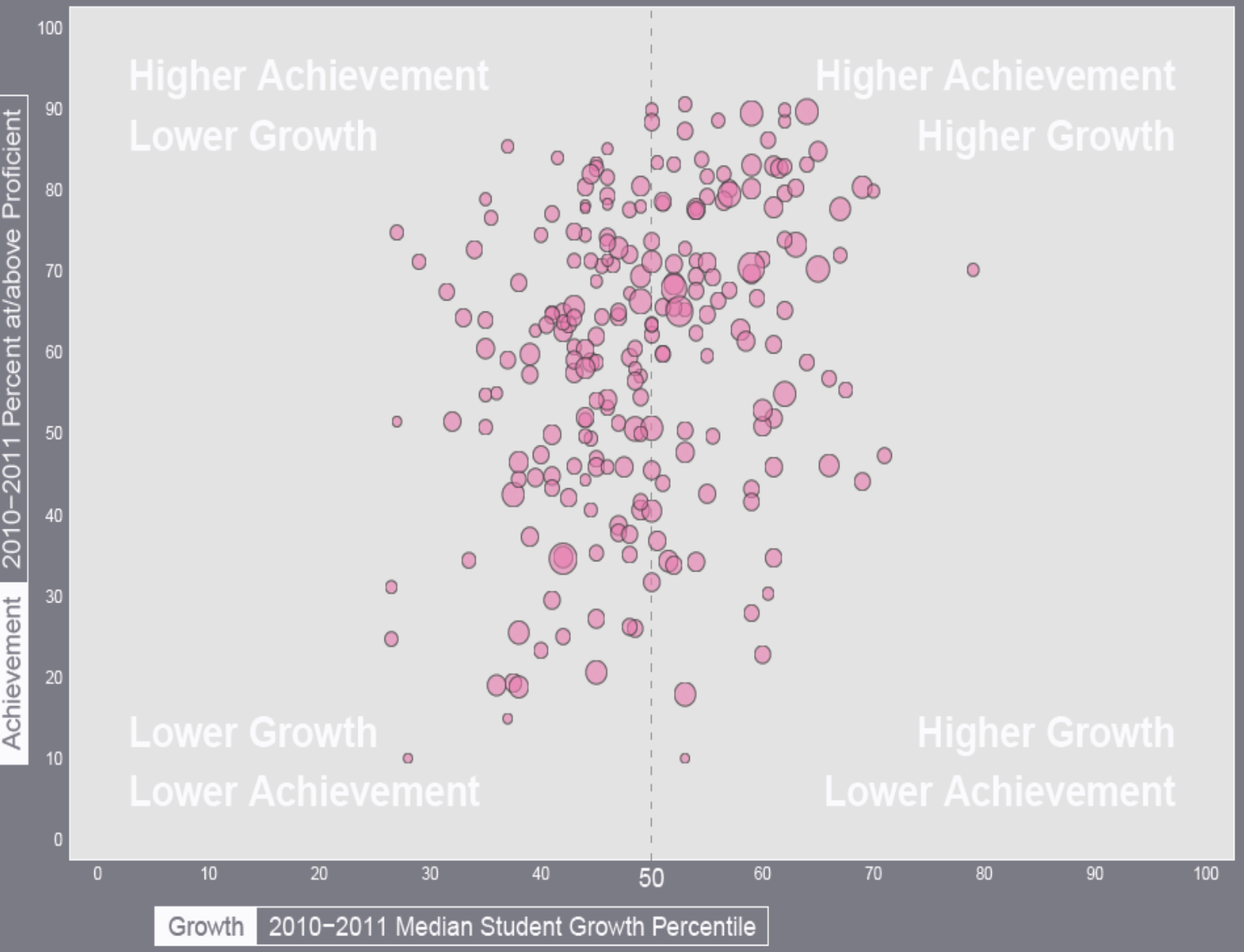
How is it calculated?



Growth and Achievement

Rhode Island School Performance

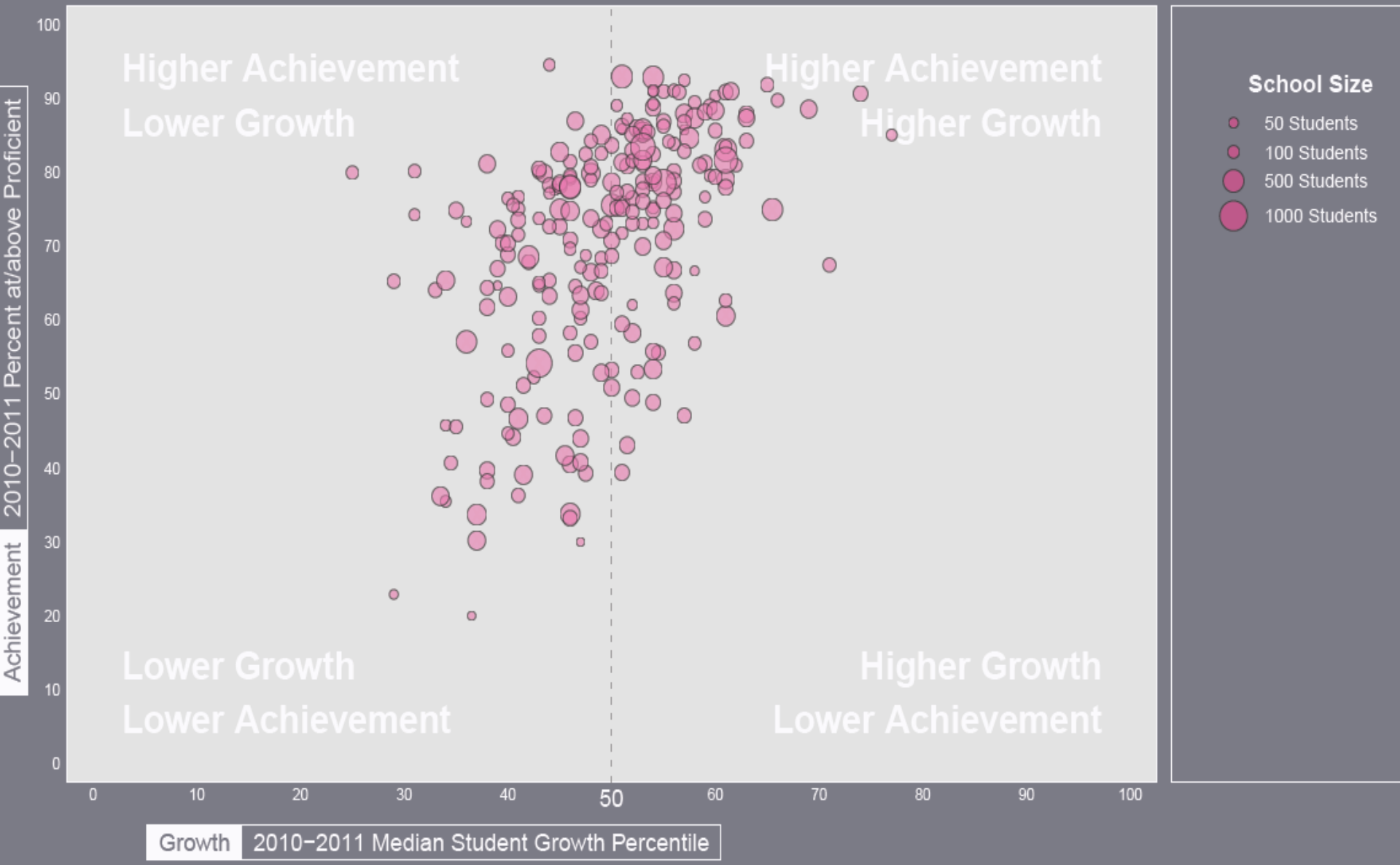
2010–2011 Mathematics Growth & Achievement



Growth and Achievement

Rhode Island School Performance

2010–2011 Reading Growth & Achievement



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Why is it useful?

- The growth model has "stretch". Students from the very bottom and the very top of the proficiency scale have the potential to achieve an SGP of 1-99.
- It can encourage students/schools/districts with low proficiency who demonstrate high growth.
- It can discourage complacency in students/schools/districts that are consistently high performing.

You may be wondering…

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How will it be used?

- Initially, we will use the growth model for school- and district-level analysis and for program evaluation and planning.
- Later, we will calculate a "student-growth percentile" score for each student to determine how his or her growth compares with their academic peers across the state.
- Eventually, SGP will be used as one component of the educator evaluation system.

  (For more information, consult the working draft of the RI Model Educator Evaluation System)

How will it be used?

- What data will be available in the future?

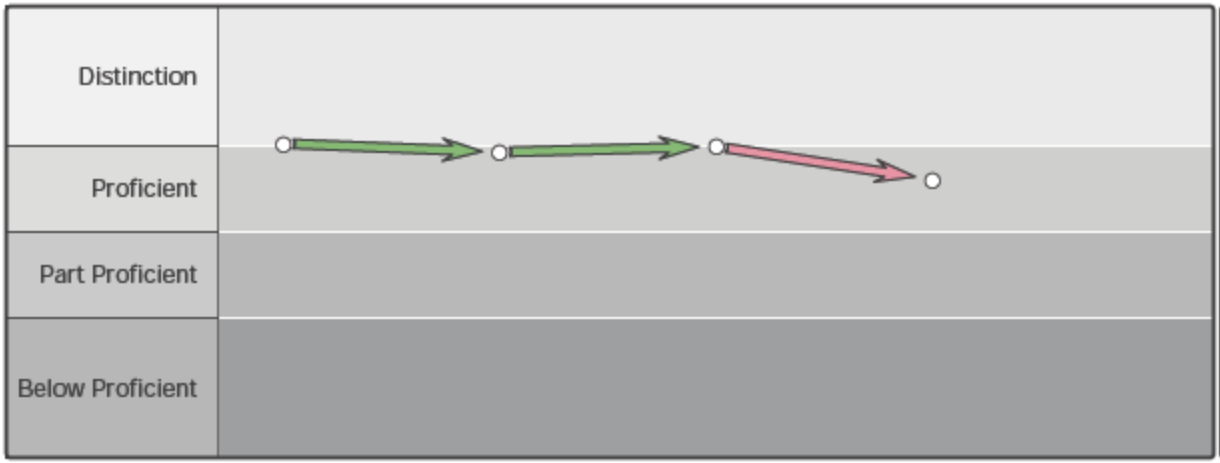
How to interpret this growth and achievement report

NECAP Test Score

Student's rate of growth

Suggested Uses

- Identify the rate of progress needed in order to reach or maintain proficient status on the NECAP next year.
- Review past growth to assess student progress toward NECAP achievement goals
- Development of remediation or enrichment plans based on rate of growth needed to reach higher NECAP achievement levels



Math

Achievement

NECAP M Scale Sc

Growth

Level

High

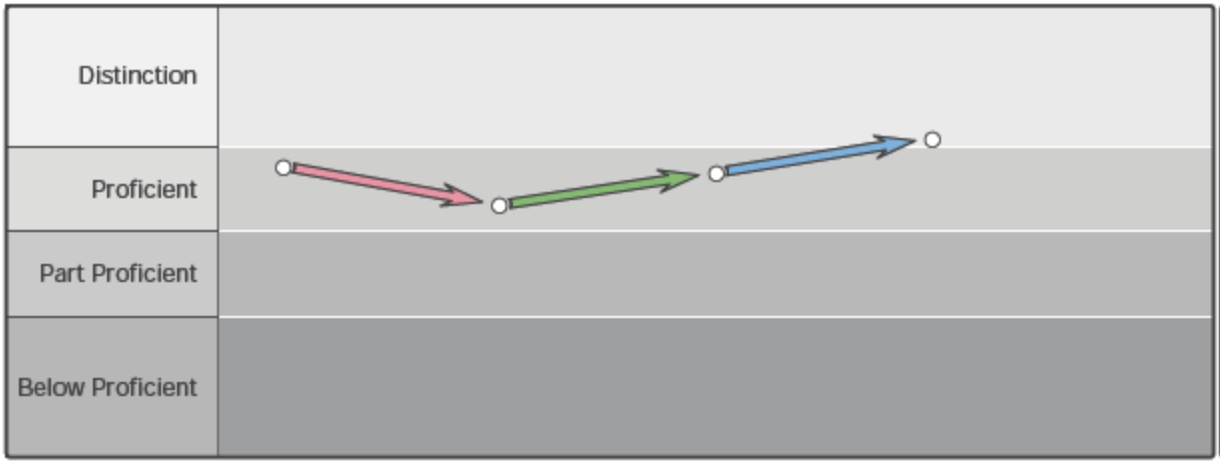
Typical

Low

	Grade 3 2007	Grade 4 2008	Grade 5 2009	Grade 6 2010	Next Year
Scale Score Achievement Level	354 Distinction	454 Proficient	554 Distinction	648 Proficient	
Growth Percentile Growth Level		47 Typical	55 Typical	10 Low	

Achievemer

Growth



Reading

Achievement

NECAP Re Scale Sc

Growth

Level

High

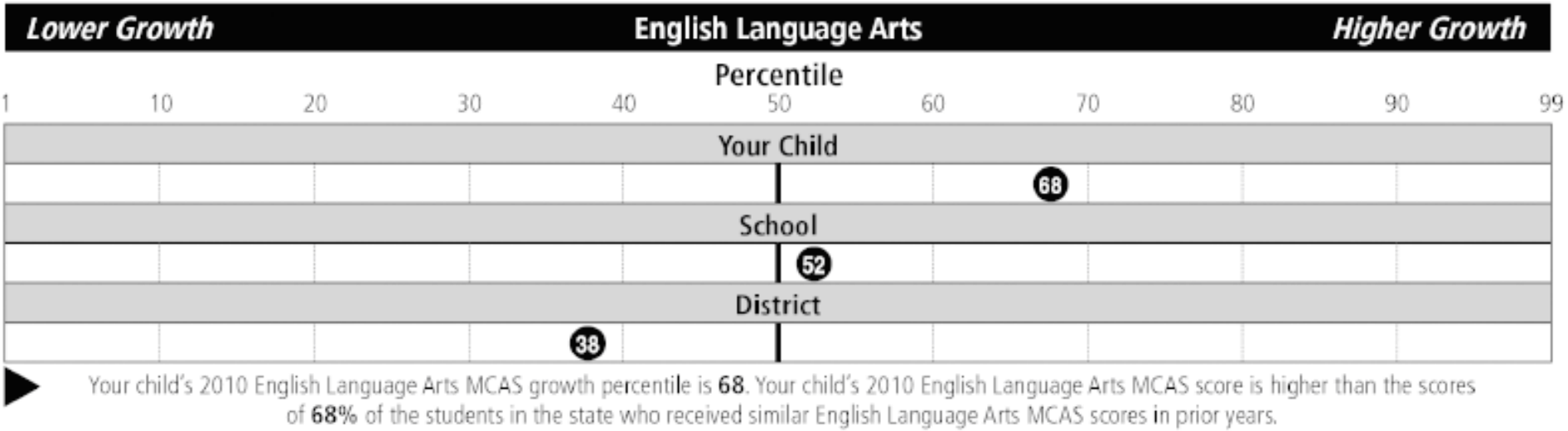
Typical

Low

	Grade 3 2007	Grade 4 2008	Grade 5 2009	Grade 6 2010	Next Year
Scale Score Achievement Level	353 Proficient	445 Proficient	551 Proficient	661 Distinction	
Growth Percentile Growth Level		16 Low	59 Typical	91 High	

Achievemer

Growth



Your child's 2010 English Language Arts MCAS growth percentile is **68**. Your child's 2010 English Language Arts MCAS score is higher than the scores of **68%** of the students in the state who received similar English Language Arts MCAS scores in prior years.

CO Growth Model tutorial

For More Information

- Betebenner, D. W. (2009). Norm-and criterion-referenced student growth. Educational Measurement: Issues and Practice, 28(4):42–51. Yen, W. M. (2007).

- Vertical scaling and No Child Left Behind. In Dorans, N. J., Pommerich, M., and Holland, P. W., editors, Linking and Aligning Scores and Scales, pages 273–283.Springer, New York.

For more information, visit:

http://www.cde.state.co.us/research/GrowthModel.htm

http://www.doe.mass.edu/mcas/growth/

Questions? Comments? Email us:

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Dig in to the Data

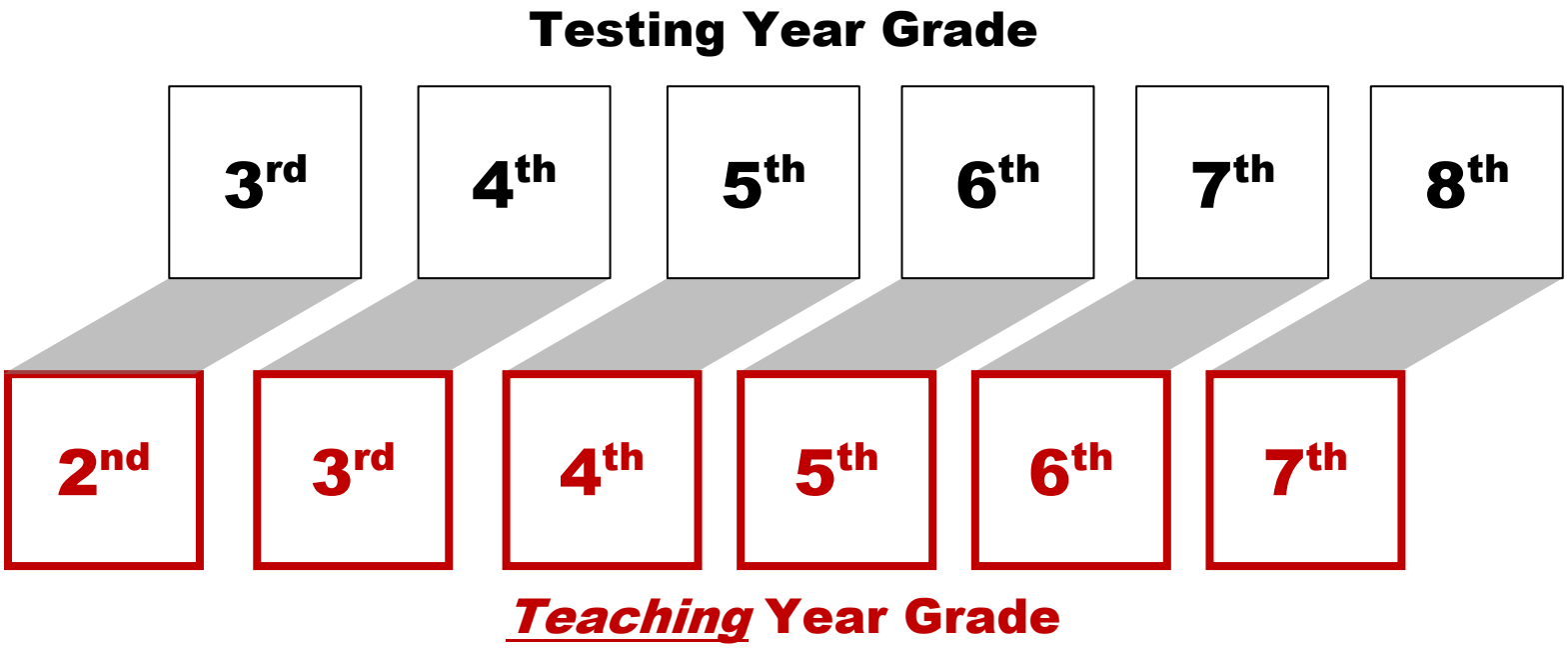
- The data you will receive today is DRAFT and CONFIDENTIAL

- Do not distribute the data or share it with anyone other than Superintendants/Assistant Superintendants and Principals/Assistant Principals

Teaching Year vs. Testing Year

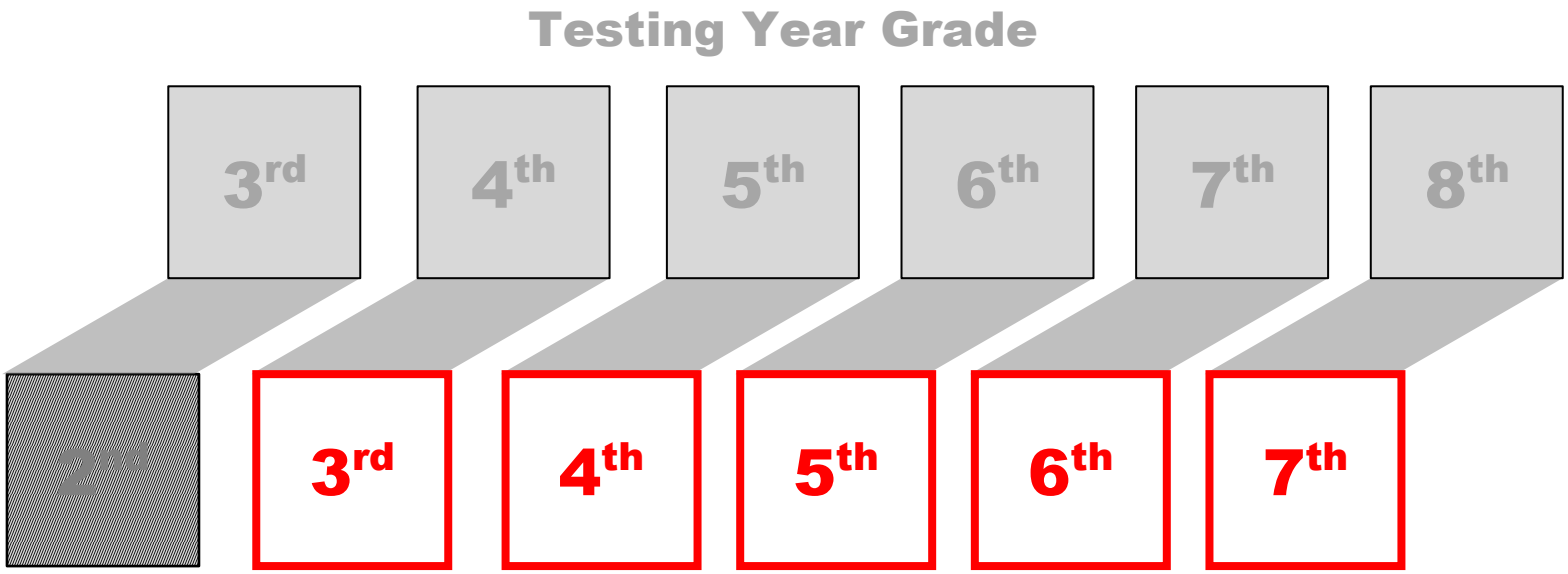
The data you will receive is **TEACHING** year data.

Remember: The 8th grade NECAP test is based on 7th grade standards; the 7th grade NECAP test is based on 6th grade standards, and so on.



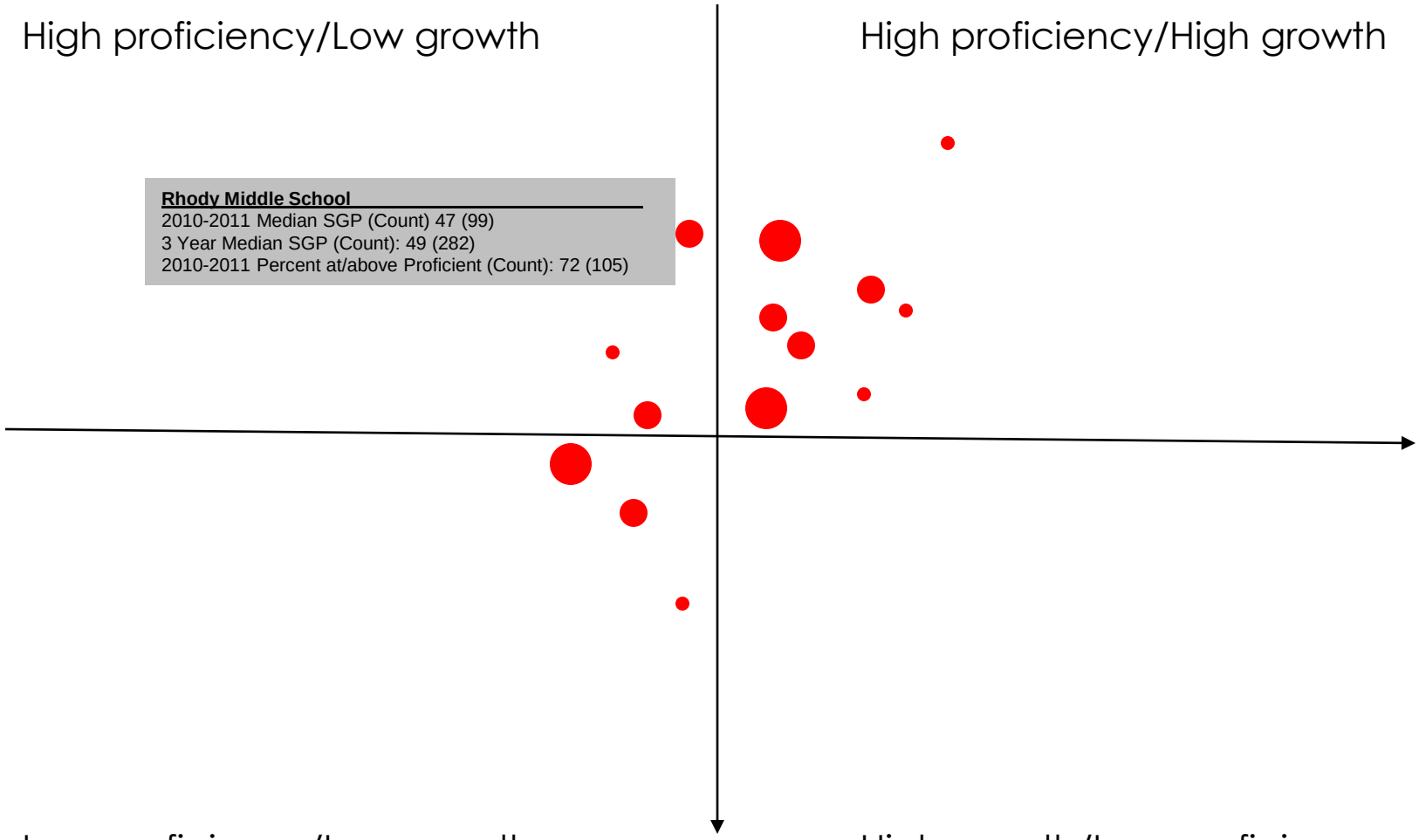
Teaching Year Data Grades

The RI Growth Model requires a minimum of 2 years of testing data. Therefore, only grades 3-7 are currently included in the growth calculations.



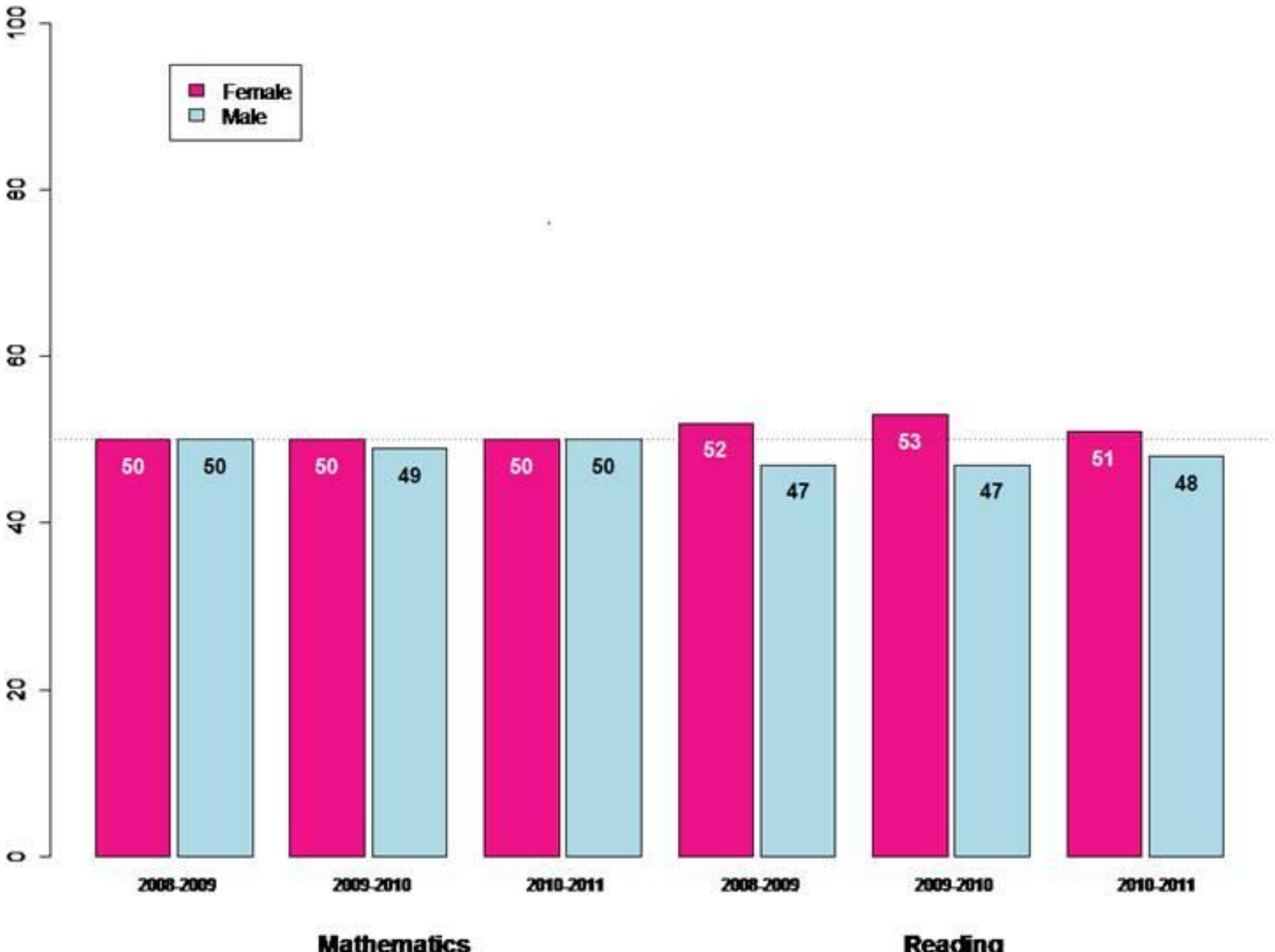
What about high schools?

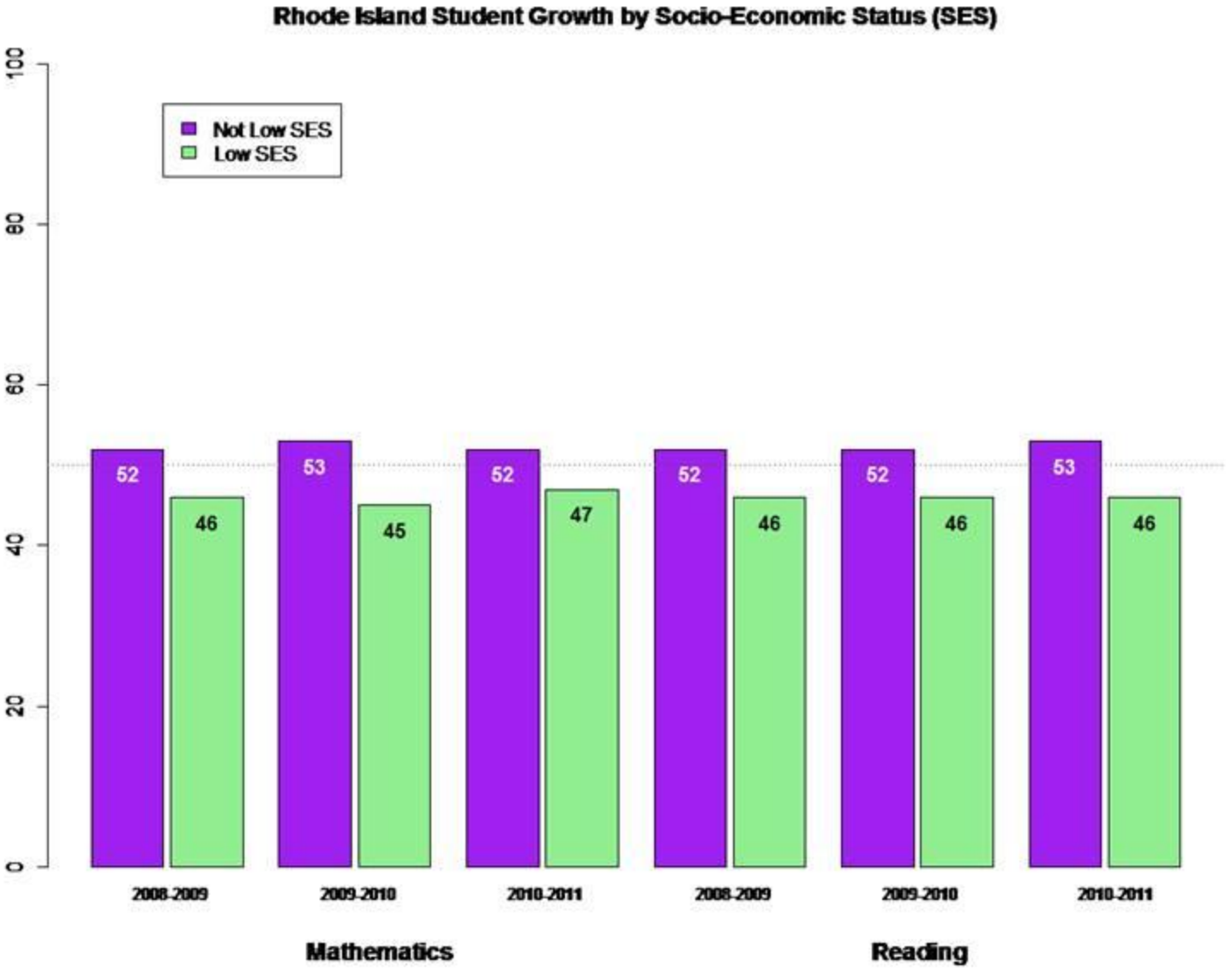
- We do not currently have data for high schools
- When we move to PARCC, we hope to have growth data for grades 3-11


High proficiency/Low growth
High proficiency/High growth
Rhody Middle School
2010-2011 Median SGP (Count) 47 (99)
3 Year Median SGP (Count): 49 (282)
2010-2011 Percent at/above Proficient (Count): 72 (105)
Low proficiency/Low growth
High growth/Low proficiency

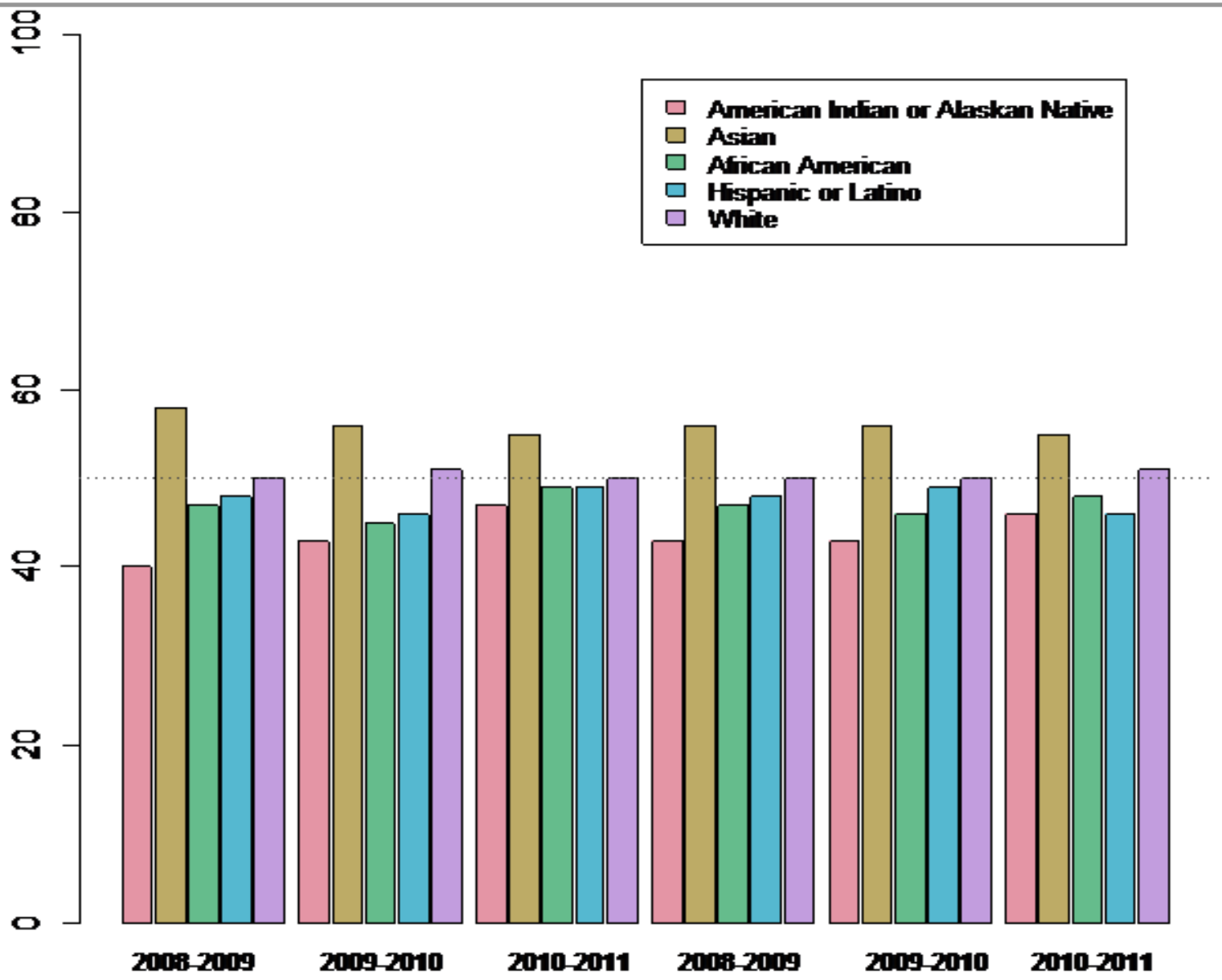
Dig in to the Data

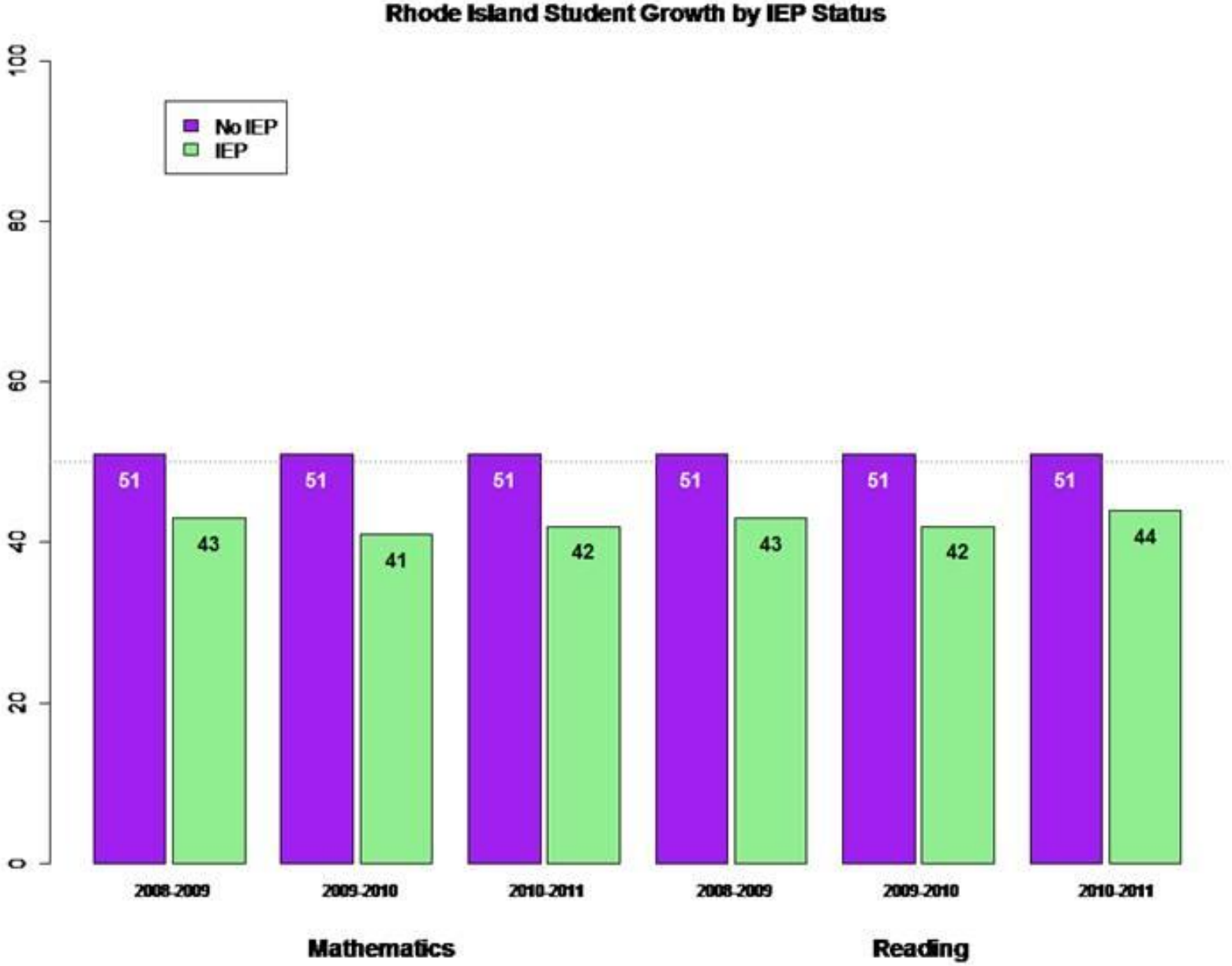
- Looking at your growth data
- Using the observation sheet


Rhode Island Student Growth by Gender
Female
Male
100
80
60
40
20
0
50
50
50
49
50
50
52
47
53
47
51
48
2008-2009
2009-2010
2010-2011
2008-2009
2009-2010
2010-2011
Mathematics
Reading


Rhode Island Student Growth by Socio-Economic Status (SES)
Not Low SES
Low SES
0
20
40
60
80
100
52
46
53
45
52
47
52
46
52
46
53
46
2008-2009
2009-2010
2010-2011
2008-2009
2009-2010
2010-2011
Mathematics
Reading

Rhode Island Student Growth by Ethnicity




Rhode Island Student Growth by IEP Status
No IEP
IEP
100
80
60
40
20
0
51
43
51
41
51
42
51
43
51
42
51
44
2008-2009
2009-2010
2010-2011
2008-2009
2009-2010
2010-2011
Mathematics
Reading

Rhode Island Student Growth by LEP Status